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AGO D/A ltr 29 Apr 1980 ; AGO D/A ltr 29 Apr 1980	

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# **SECURITY**

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**DEPARTMENT OF THE ARMY**  
**OFFICE OF THE ADJUTANT GENERAL**  
WASHINGTON, D.C. 20310

IN REPLY REFER TO  
AGAM-P (M) (14 Feb 68) FOR OT RD-674110

20 February 1968

**SUBJECT:** Operational Report - Lessons Learned, Headquarters, 222d  
Aviation Battalion, Period Ending 31 October 1967 (U)

**TO:** SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation by USACDC in accordance with paragraph 6f, AR 1-19 and by USCONARC in accordance with paragraph 6c and d, AR 1-19. Evaluations and corrective actions should be reported to ACSFOR OT within 90 days of receipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from Lessons Learned during current operations, and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

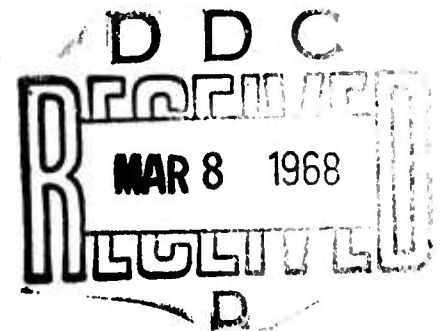


**C. A. STANFIEL**  
Colonel, AGC  
Acting The Adjutant General

1 Incl  
as

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DEPARTMENT OF THE ARMY  
HEADQUARTERS, 222ND AVIATION BATTALION  
APO San Francisco 96291

AVOC I

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SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65 for Period  
Ending 31 October 1967 (U)

TO: SEE DISTRIBUTION

SECTION I

SIGNIFICANT EVENTS

A. (C) COMMAND.

1. (U) Lieutenant Colonel William L. Denend assumed command of the 222nd Combat Support Aviation Battalion on 1 August 1967 vice Lieutenant Colonel Thomas E. Thompson.

2. (U) Major Jonah B. Davis Jr. assumed command of the 54th Utility Airplane Company on 31 September 1967 vice Lieutenant Colonel Herbert W. Nichols.

3. (U) Lieutenant Colonel Rennie M. Cory assumed command of the 135th Assault Helicopter Company on 27 September 1967 vice Major William W. Spurlock.

4. (U) Major Donald R. Massey assumed command of Headquarters and Headquarters Company on 31 October 1967 vice Captain Edwin J. Heathcoe.

5. (C) The organizational structure of the 222nd Combat support Aviation Battalion during the period was as follows (all units stationed at Vung Tau, RVN Y3296472):

a. Headquarters and Headquarters Company

85th Medical Detachment

b. 54th Utility Airplane Company (U-1A)

255th Transportation Detachment

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c. 73rd Surveillance Airplane Company (OV-1)

d. 135th Assault Helicopter Company (UH-1)

(1) 68th Signal Detachment

(2) 614th Transportation Detachment

e. 147th Assault Support Helicopter Company (CH-47)

(1) 171st Transportation Detachment

(2) 2nd Platoon, 478th Assault Support Helicopter Company  
(CH-54)

**B. (U) PERSONNEL, MORALE AND DISCIPLINE.**

1. (U) Programmed losses continued at a high rate during the period with a marked decrease in replacements as a result of a cut back to TOE strength levels directed by USARV. This reduction reduced the Battalion's strength to 98% of that authorized the first month, and has remained constant during the remainder of the period.

2. (U) There were no applications for WO flight training during the period, however, three individuals have taken the necessary aptitude tests and are in the process of preparing applications.

3. (U) A total of 72 individuals extended their foreign service tours during the period covered by this report.

4. (U) Since DA reversed its policy on not permitting individuals to hand carry their records from CONUS, a marked decrease has been noted in personnel arriving without records. Those cases still pending are individuals who departed their last station prior to the change in procedure.

5. (U) The Battalion finance personnel were attached to 9th Finance the last day of the period.

**C. (U) INTELLIGENCE AND COUNTERINTELLIGENCE.**

1. (U) There were no significant changes in this area. The Battalion S-2 continued to function as the guiding authority for units of this battalion in all matters pertaining to intelligence and security.

2. (U) The S-2 Section conducts a weekly orientation for all replacement personnel. Major Subjects covered are:

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- a. VC Tactics.
- b. VC Mines and Bobby Traps.
- c. SAEDA Security Briefing.

3. (U) The S-2 Section was delegated the authority to re-issue obsolete DA Form 873's pertaining to Secret security clearances which are not eight years old. This was an improvement.

4. (U) The Order of Battle was maintained and weekly intelligence briefings were conducted for battalion key personnel.

5. (U) The S-2 continues to publish weekly INTSUM's. Information is gathered from various INTSUM's, PERINTREPS and USARV Weekly G-2 Intelligence Briefing.

D. (U) PLANS, OPERATIONS AND TRAINING.

1. (U) During the period the battalion provided Army Aviation support on each of the ninety-two days, committing an average of 23 aircraft per day. Missions conducted included troop transport, artillery air movement, aerial resupply, medical evacuation, and visual, photographic and electronic aerial surveillance.

2. (U) On 16 August 1967, the 147th Assault Support Helicopter Company of this battalion flew the first CH-47A "Chinook" to log 1000 hours of combat time. Aircraft number 65-7996 was piloted by Major Charles H. Gillman, the Commanding Officer at the time.

3. (U) On 23 August 1967, the 147th Assault Support Helicopter Company successfully conducted the first tactical move of a complete 155mm howitzer battery from Bear Cat to the Old French Fort at Thon Duc. Four CH-47's and two CH-54's completed the twenty-five (25) sortie missions in three hours and thirty minutes.

4. (U) In August 1967, the 147th Assault Support Helicopter Company deployed one helicopter flight section to Can Tho, RVN. Working under the operational control (OPCON) of the 13th Aviation Battalion, this battalion has found that coordination and relations with U.S. and ARVN elements in the Delta have greatly improved.

5. (U) On 31 August 1967, this battalion published a "Guide to CH-47 (Chinook) Operations" and made distribution of 500 copies to using units. A copy is attached as Inclosure 1.

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6. (U) From 3 September 1967 to 11 October 1967, the 147th Assault Support Helicopter Company of this battalion supported the USAF on Operation Sky Spot at Udon, Thailand, with one CH-47 "Chinook". All other information concerning this operation is classified and is not available for publication.

7. (U) During the period 9-11 September 1967, this battalion conducted a recovery operation at the crash site of an Air Force C-123 in the vicinity of BAU LOC (YT998625). The mission commander was LTC William L. Denend, Commanding Officer, 222nd Combat Support Aviation Battalion. This unit furnished one UH-1 C&C ship and one CH-47 aircraft for the operation. The operation was completed at 1620 hours on 11 September 1967, with the recovery of 9 or 10 remains, and the destruction of the aircraft. An after action report was submitted to the Commanding Officer, 12th Combat Aviation Group on 12 September 1967.

8. (U) On 14 and 15 September 1967, the 147th Assault Support Helicopter Company conducted helicopter gunnery training in order to train additional door gunners. Students were given two hours of classroom instruction, three hours of range firing and three hours of aerial firing.

9. (U) On 22 September 1967, operational control of the 73rd Surveillance Airplane Company was changed from MACV J2 to II FFORCEV G-2.

10. (U) On 27 September 1967, this battalion submitted a staff study on the feasibility of organizing an Assault Support Aviation Battalion to the Commanding Officer, 12th Combat Aviation Group. It was recommended that such an organization be established to coordinate all CH-47/CH-54 assets in the 12th Combat Aviation Group.

11. (U) During the reporting period, the battalion received and filled six (6) quotas to the USAF Jungle Survival School in the Philippines and fourteen (14) quotas to the USAF Sea Survival School in Okinawa.

12. (U) On 19 October 1967, this battalion initiated a program of informational classes for officers and noncommissioned officers. This program will cover such themes as basic military subjects, various related aviation topics and unit cross training. The first class was on Military Justice and was presented by Major Lassiter from the Staff Judge Advocates Office, USARV.

13. (U) On 28 September 1967, the advance party of the 135th Assault Helicopter Company arrived in-country and on 3, 4 and 5 October 1967, the main body arrived. The unit officially closed in at Vung Tau at 091100 October 1967. The unit was given orientation training and then began



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in-country training with the 11th Aviation Battalion on 13 October 1967. The 135th Assault Helicopter Company is unique in that it is fully integrated unit with a Royal Australian Navy contingent as a part of the company. The officers and men hold TOE positions within the unit. Input data for this report from the 135th Assault Helicopter Company is attached as Inclosure 2.

E. (U) LOGISTICS.

1. (U) Helicopter parking area, revetments and housing were incomplete for newly arrived assault helicopter company. Approval and start of construction projects was delayed pending publication of USARV stationing instructions. Projects were completed prior to the unit achieving operational ready status.

2. (U) Ballistic flight helmets in use in this theater could not be procured for newly arrived flight crew members. Pending receipt of requisitioned item under priority O2, personnel are utilizing AFH-5 helmets.

3. (U) The 147th Assault Support Helicopter Company and 171st Transportation detachment each received on hand receipt from the 388th Transportation Company one CH-47 float helicopter. The 388th Transportation Company had the CH-47 helicopters on hand and no qualified personnel to maintain them. In lieu of letting the aircraft sit on the line with no personnel to maintain them they were offered to the 147th and 171st as float aircraft, with the agreement that they would perform the maintenance and upkeep on the aircraft. The aircraft are used for local resupply missions and to replace aircraft that are down for maintenance.

4. (U) During the month of September 1967, the 73rd Surveillance Airplane achieved a 79.5% aircraft availability. Although this rate was in excess of that listed in AR 710-12, it reflects a significant decrease from previous months. The trend is directly related to numerous shortages of critical personnel.

F. (U) INFORMATION.

1. (U) During the reporting period, there has been 26 feature stories released through informational channels. Thirty-four hometown tape interviews for Thanksgiving release were made through facilities of II FFORCEV.

2. (U) Daily operational information was reported to USARV Information Office for release through the USARV Daily Summary. This is a telephonic report and no record has been maintained on the number of releases made.

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G. (C) SIGNAL.

1. (U) Hot lines between Battalion Operations Center (BOC) and all four companies were installed.
2. (C) A secure teletypewriter circuit was installed between the 73rd Surveillance Airplane Company to II FFORCEV for the transmission of missions and mission results.

H. (U) SURGEON.

1. (U) The Medical Section of the 222nd Combat Support Aviation Battalion continues to conduct a MEDCAP program by giving medical attention and supplies to the Nam Dong Refugee Village, 5 miles north of Vung Tau.
2. (U) The Flight Surgeon continues to help perform Medical Officer of the Day for the 36th Evacuation Hospital in Vung Tau. This aids tremendously in maintaining an excellent relationship between the battalion and the hospital, thereby giving us access to medical specialist consultation when necessary.
3. (U) The Flight Surgeon continues to conduct a program of education and orientation lectures on preventive medicine, sanitation, and aviation safety.
4. (U) During the quarter, a program of education and prevention of Venereal Disease was conducted. As a result, the battalion VD rate for September 1967 was  $\frac{1}{2}$  of that for July 1967.

I. (U) CIVIC ACTIONS.

1. (U) Units of this battalion continue to support a progressive and realistic Civic Actions program under the staff supervision of the Battalion Civic Actions Officer.
2. (U) A local orphanage, elementary school, refugee hamlet and a hospital are sponsored by units of this battalion.
3. (U) This battalion continues to work closely with MACV Advisory Team #79 and a local CCORDS Agency. Trucks and personnel for transporting supplies and foodstuffs are made available on an as-needed basis.
4. (U) Two English classes are currently being conducted by personnel of this battalion, with a combined total of approximately 90

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students.

5. (U) Future plans are being made to include some local orphans in our Christmas Activities and will be reported in the next quarterly ORLL.

## SECTION II. PART I

### LESSONS LEARNED

A. (U) PERSONNEL. None.

B. (U) OPERATIONS.

1. (U) ITEM. Responsibility for rigging loads for movement by CH-47/CH-54 aircraft.

DISCUSSION. Lack of rigging equipment by supported units continues to be a problem. Out of twenty-four (24) Unsatisfactory Mission Reports submitted by this battalion during the reporting period, seven (7) were due to either improperly rigged loads or loads not rigged at all due to lack of equipment. Guides for utilization of both the CH-47 and CH-54 aircraft have been published by this battalion and distributed in 500 copies to using units. The CH-47 guide listed nomenclature and FSN for all sling and rigging equipment available through normal supply channels.

OBSERVATION. The continuing delays caused by the requirement to rig loads after the arrival of the lift helicopter, is resulting in poor utilization of these critical assets. This item was reported in the previous Operational Report - Lessons Learned, dated 14 August 1967. Command emphasis in this area could result in the supported units obtaining the necessary rigging equipment and being made aware of their responsibility in this matter.

2. (U) ITEM. Glare caused by unshielded RO-166 Recorder Processor Viewer on the OV-1 "Mohawk".

DISCUSSION. The RO-166 when used at night without its VISOR presents a safety hazard due to glare. To use the VISOR would inhibit use of the radar set as a primary navigational aid. A solution is the use of a 16"x30" piece of canvas draped over the raised observation window.

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Ending 31 October 1967 (U) 15 November 1967

OBSERVATION. The use of this item has greatly reduced the glare in the cockpit without depriving the pilot of the use of the radar screen when desired, and allows the observer to use the bright mode of viewer illumination which improves early identification of targets as they appear.

3. (U) ITEM. Difficulty of Artillery Coordination.

DISCUSSION. Several complaints were voiced by artillery units regarding ceasefires over excessive periods of time to accomplish Recce Plan SLAR missions. Several missions were combined so that required areas could be covered on a repetitive basis on a circuitous flight path. Overlays of this target path were given all major artillery units along with proposed nightly TOTs.

OBSERVATION. By reducing TOTs to any given area from 10 minutes to 15 minutes, and overflight 4 to 6 standard times nightly versus one to three hours on an unannounced basis, the artillery unit has been able to plan fires more easily and is more amenable to short check.

4. (U) ITEM. XM-18 Mini-Gun.

DISCUSSION. Two XM-18 Mini-Guns were assigned to the 73rd Surveillance Airplane Company of this battalion for testing and evaluation during the month of September 1967. The guns were mounted on stations 3 and 4 of the OV-1 "Mohawk". During the short period of testing (approximately 2 weeks) the mini-guns proved an effective anti-personnel weapon. This is largely attributable to its high rate of fire-power (2000 - 6000 RPM) as compared to the Cal .50 Machine Gun (1150 - 1250 RPM) presently being employed by this unit.

OBSERVATION. The XM-18 Mini-Guns mounted on the OV-1 "Mohawk" aircraft can be effectively used against unprotected troops in the open or in lightly vegetated terrain. Based on the unit's armed visual surveillance missions utilizing the XM-18 Mini-Guns on OV-1 "Mohawk" aircraft, the system is evaluated as a highly reliable, extremely effective weapon for use against soft type targets. Such targets as troops, sampans and exposed material comprise the preponderance of observed enemy activity in Vietnam and can be effectively engaged by the XM-18 system. This system, in addition to providing effective fire was also found to be easily maintained.

C. (U) TRAINING AND ORGANIZATION.

1. (U) ITEM. Proficiency of newly assigned aviators.

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DISCUSSION. During the past quarter, the 54th Utility Airplane Company received 10 newly appointed warrant officers from the U-1A transition course at Fort Ord, California. During their initial orientation and standardization ride it was evident that they faced many problems in flying the U-1A aircraft in Vietnam. These problems are as follows:

- a. Lack of knowledge in proper crosswind techniques.
- b. Ability to fully utilize ADF Navigational Equipment.
- c. Operation into short unimproved strips with maximum loads.

OBSERVATION. The unit has instituted a training program with unit instructor pilots, where the newly assigned aviators underwent an intensified training program in the previously mentioned problem areas. Each aviator received a minimum of 50 hours flying during this program. This training has resulted in a high degree of standardization, and contributed immensely to the unit's excellent safety record.

2. (U) ITEM. Training of newly assigned APS-94 (SLAR) Technical Observers.

DISCUSSION. Newly assigned observers (MOS 26E20), were found to be inadequately skilled in map reading. In order to reduce training time, templates duplicating major terrain and flight lines for Recce Plan mission areas were designed and reproduced on clear acetate.

OBSERVATION. These templates greatly improved the observers' ability to stay oriented and enhanced read out of targets as they appeared. The templates also improved the use of the radar as a navigational aid.

- D. (U) INTELLIGENCE. None.

- E. (U) LOGISTICS.

1. (U) ITEM. Preparation for incoming units.

DISCUSSION. Over four months prior to the scheduled arrival date of an assault helicopter company, this battalion was informally notified that the company was to be assigned and stationed in Vung Tau. This battalion was officially notified that it was the sponsoring unit 72 days prior to scheduled arrival, however, USARV stationing instructions were not received until 45 days prior to arrival date. Since support units would not accept work requests or requisitions for the incoming unit without USARV stationing instructions, mission essential supplies and construc-

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tion were not available or completed prior to the arrival date. A crash program resulted in completion prior to the units operational readiness date.

OBSERVATION. Stationing instructions should be published sufficiently in advance of the anticipated arrival date to allow sponsoring units to comply with published instructions on preparation for incoming units, and to allow support units to schedule construction routinely.

2. (U) ITEM. Ballistic flight helmets for newly arrived flight crewmen.

DISCUSSION. The additional protection offered by the ballistic flight helmet over the APM-5 helmet has been recognized and has resulted in the acquisition of helmets for in-country flight crews. The supply is insufficient to outfit the crew members of newly arrived units although their scheduled deployment has been published well in advance.

OBSERVATION. In view of the known superiority of the ballistic flight helmet, and the known programmed increase in flight crew personnel in theater, every effort should be made to procure these helmets and get them into the theater in sufficient numbers.


## SECTION II, PART II

### RECOMMENDATIONS

1. (U) That command emphasis be placed on stressing the supported units responsibility for providing necessary sling and rigging equipment and preparing loads for airlift by cargo helicopters support.

2. (U) That the XM-18 Mini-Gun be approved on a permanent basis for use on the OV-1 "Mohawk".

2 Incl  
as

  
WILLIAM L. DENEND  
LTC, Infantry  
Commanding

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AVGC-SC(16 Nov 67) . 1st Ind  
SUBJECT: LOT, Operational Report - Lessons Learned (RCS CSFOR-65) for  
Period Ending 31 October 1967 (U)

HEADQUARTERS, 12TH COMBAT AVIATION GROUP, APO 96266, 21 November 1967

THRU: Commanding General, II Field Force Vietnam, APO 96266

TO: Assistant Chief of Staff Force Development, Department of the  
Army, Washington, D.C. 20310

1. (U) One copy of the 222d Combat Support Aviation Battalion's Operational Report - Lessons Learned (ORLL) (RCS CSFOR-65) for period ending 31 October 1967, is forwarded in compliance with USARV Regulation 1-19, dated 3 November 1967.

2. (C) This headquarters has reviewed subject report of the 222d Combat Support Aviation Battalion. The following comments are made on the observations and recommendations made by the battalion commander:

a. Reference Section II, Part I, paragraph B. 1., page 7. Lack of aerial delivery equipment by ground units has adversely affected the maximum utilization of CH-47 and CH-54 assets. Attempts have been made by III ARVN Corps to procure the necessary aerial delivery equipment to no avail. In order to achieve maximum utilization of CH-47 and CH-54 assets it is imperative that all ground units possess sufficient quantities of aerial delivery equipment.

b. Reference Section II, Part I, paragraph B. 2., page 7. The RO-166 is not intended to be used as a primary means of navigation.

c. Reference Section II, Part I, paragraph B. 4., page 8. Utilization of the armed OV-1 "Mohawk" aircraft to perform low level photo/recon missions is considered a necessity in order to decrease the effectiveness of VC/NVA anti-aircraft fire and to insure successful completion of assigned missions.

FOR THE COMMANDER:



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16  
AVFBC-RE-H (15 Nov 67)

2d Ind

SUBJECT: Operational Report-Lessons Learned for Quarterly Period Ending  
31 October 1967 (RCS CSFOR-65) (UIC-WDFU TO) (U)

DA HQ II FFORCEV, APO San Francisco 96266 15 DEC 1967

THRU: Commanding General, 1st Aviation Brigade, ATTN: AVBA-6, APO 96307

Commanding General, USARV, ATTN: AVHGC-DH, APO 96375

Commander-In-Chief, US Army Pacific, ATTN: GPOP-OT, APO 96558

TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D.C. 20310

1. Subject report is forwarded.


2. This command has reviewed the attached report and concurs with  
the comments and recommendations with the following observations:

Section I, p(5), para(E,4), Critical Personnel Shortages. A  
review of the personnel shortages within this unit disclosed that numerous  
shortages existed in aircraft speciality MOS's, which have resulted in  
reduced aircraft availability. The majority of these MOS shortages are  
recognized on the latest DA critical MOS shortage list.

Section II, p(7), para(B,1), Responsibility for rigging loads  
for movement by CH-47/54 aircraft. This headquarters is preparing a  
Regulation outlining the responsibilities of the supported unit in pro-  
viding necessary rigging equipment as well as for the proper rigging  
of loads.

Section II, p(8), para(B,3), Difficulty of Artillery Coordina-  
tion. The actions taken by the 222d Aviation Battalion have reduced  
the coordination problems between artillery and aviation units. There  
have been no significant problems during this period.

FOR THE COMMANDER:

  
R. E. WINESGANS  
CPT, AGC  
Asst AG

174  
AVBA-C (15 Nov 67)

3rd Ind

SUBJECT: Operational Report - Lessons Learned (RCS CSFQA-65) for Period  
Ending 31 October 1967 (UIC WDLJAA) (U)

DEC 2 6 1967

HEADQUARTERS, 1ST AVIATION BRIGADE, ATTN: AVBA-C, APO 96384

THRU: Commanding General, United States Army Vietnam, ATTN: AVHGC-DST, APO 96375  
Commander in Chief, United States Army Pacific, ATTN: GFOP-OT, APO 96558

TO: Assistant Chief of Staff for Force Development, Department of the Army  
(ACSFQA DA), Washington, D.C. 20310

1. This headquarters has reviewed subject report of the 222nd Combat Support Aviation Battalion, considers it to be adequate and concurs with the contents as indorsed except as indicated.

2. The following additional comments are considered pertinent:

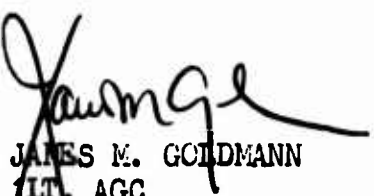
a. Reference Sect II, Part I, par B3, pg 8: Nonconcur; Reducing TOT's on any given area to 4 to 6 standard times nightly establishes a pattern, stereotypes the surveillance and presents obvious early warning to the enemy. Coordination with artillery units should be planned on a daily basis to preclude confusion or interference with artillery or surveillance efforts.

b. Reference Sect II, Part I, par E1, pg 9: Since new unit stationing is made with the approval of COMUSMACV based on tactical requirements, it is rarely possible to acquire a stationing list early enough to accomplish all the logistical action required. Recommend operational headquarters be tasked with the requirement of providing more timely stationing directives.

c. Reference Sect II, Part I, para E2, pg 10: Concur; This headquarters has constantly been trying to get sufficient quantities of the ballistic helmet. USAhV Aviation and 1st Log Command have been made aware of brigade shortages. In addition, the brigade has informed the AMC representative at USARV and Major Whitmore, Natick Laboratories, of these shortages.

FOR THE COMMANDER:

2 Incl  
nc

  
JAMES M. GOLDMANN  
LT, AGC  
Asst Adjutant General

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AVHGC-DST (15 Nov 67) 4th Ind (C)  
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for  
Period Ending 31 October 1967 (U)

HEADQUARTERS, UNITED STATES ARMY VIETNAM, APO 96375 22 JAN 1968

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT,  
APO 96558

1. (U) This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 October 1967 from Headquarters, 222d Aviation Battalion (DLJA) as indorsed.

2. (C) Pertinent comments follow:

a. Reference item concerning responsibility for rigging loads, page 7, paragraph B1; page 10, paragraph 1; and 1st Indorsement, paragraph 2a: Concur. The supporting aviation unit's liaison officer makes the supported unit aware of sling load requirements and advises what equipment should be on hand. The items of equipment required are obtained through the supported unit's supply channels.

b. Reference item concerning the XM-18 mini-gun, page 8, paragraph 4; and page 10, paragraph 2: Concur. The Third Aviation Closed Loop Conference, 17 November - 7 December 1967, authorized the XM-18 as a replacement for the XM-14 on the OV-1 airplane. As the XM-14 is phased out, it will be replaced by the XM-18.

c. Reference item concerning preparation for incoming units, page 9, paragraph E1; and 3d Indorsement, paragraph 2b. Once a unit is validated for deployment, it is placed on the USARV Troop List. In most instances, a unit is identified, together with its programmed deployment area, in excess of six months prior to arrival in RVN. As firm movement data is announced, this information and designation of sponsors is published in a USARV letter. This letter, subject: "Verification of Units Programmed for RVN", is dispatched a minimum of 60 days prior to ETA in RVN. Thirty to forty-five days is considered sufficient for MER construction providing the engineer effort is available. It is when gaining units make changes in programmed locations late in the deployment cycle that problems arise. All headquarters concerned must continue to emphasize the necessity to finalize unit destinations in sufficient time to permit orderly and timely MER construction.

*Downgraded at 3 year Intervals  
Declassified after 12 years  
DOD DIR 5200.10*

**CONFIDENTIAL**

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**AVHGC-DST (15 Nov 67)**

**SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for  
Period Ending 31 October 1967 (U)**

d. Reference item concerning ballistic flight helmets, page 10, paragraph 2: Concur. Sufficient ballistic helmets were requested in October 1967 to satisfy projected requirements through July 1968. Information received from DA indicates a procurement contract was approved on 14 December 1967 and first deliveries will begin in May 1968. A message has been forwarded to DA requesting an earlier delivery date and asking that shipments be made as helmets become available.

3. (U) A copy of this indorsement will be furnished to the reporting unit through channels.

**FOR THE COMMANDER:**



**D. E. TUMAN  
Major, AGC  
Asst Adjutant General**

**Copy furnished:**

**HQ, 222d Avn Bn  
HQ, 1st Avn Bde**

**CONFIDENTIAL**

GPOP-DT(15 Nov 67)

(U) 5th Ind

SUBJECT: Operational Report for the Quarterly Period Ending 31 October  
1967 from HQ, 222d Avn Bn (UIC: WDLJAA) (RCS CSFOR-65)

HQ, US ARMY, PACIFIC, APO San Francisco 96558

8 FEB 1968

TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding  
indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:



HEAVRIN SNYDER  
CPT, AGC  
Asst AG

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DEPARTMENT OF THE ARMY  
HEADQUARTERS, 222D AVIATION BATTALION  
APO 96291

AVGC I

31 August 1967

SUBJECT: Guide to CH-47 (Chinook) Operations

TO: SEE DISTRIBUTION

1. Purpose: The purpose of this letter is to familiarize using units with the operational capabilities of the CH-47 (Chinook) Helicopter, explain the responsibilities of the supported unit when utilizing this aircraft, and to present general information on CH-47 employment that will assist in providing timely support to using units.

2. General: The CH-47 (Chinook) Helicopter is a twin-turbine-engine, tandem-rotor aircraft. Its maximum gross weight is 33,000 lbs. The following data is provided for information:

a. Overall Dimensions:

- (1) Length (rotor tip to rotor tip max) 98' 3.25"
- (2) Width (rotor diameter max) 59' 1.25"
- (3) Height (max) 19'

b. Cargo Compartment Dimensions:

- (1) Length 366"
- (2) Width 90"
- (3) Height 78"

c. Fuel:

- (1) Type JP-4
- (2) Capacity 621 gal (4036 lbs)
- (3) Consumption 300 gal per hour

d. Endurance: One hour and 40 min with 30 min fuel reserve.

e. Airspeed - Planning Figures

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(1) Empty 100 kts

(2) Loaded 80 kts

f. Allowable Combat Load (ACL) - Internal or External 8,000 lbs.

g. Troop Capacity: Normal

(1) US 33

(2) ARVN 46 (seat belts for 33 only)

3. Capabilities and Limitations:

a. Capabilities:

(1) Continuous tactical operations during visual flight conditions.

(2) Augmentation of aeromedical evacuation from the tactical zone.

(3) Payload of 8,000 lbs, radius of action 75 n. mi., with 30 minute fuel reserve (a partial list of type loads is attached as Inclosure 1).

(4) Payload may be increased up to 12,000 lbs by decreasing fuel load and radius of action, but detailed planning with a Liaison Officer from the supporting helicopter company must be accomplished.

(5) Cargo may be loaded internally or sling loaded.

(6) Rapid loading and unloading of hand cargo can be achieved by utilizing roller conveyors.

(7) Short haul and emergency operations

(a) River/obstacle crossing capability of 11,000 lbs with minimum fuel.

(b) Emergency troop capacity is 40 US troops at 240 lbs per man, with a 25n. mi. radius of action.

b. Limitations:

(1) Local security must be provided by supported unit or other troops to permit sustained operations.

(2) Capabilities are reduced during hours of darkness, reduced visibility, and severe weather.

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(3) Extensive support maintenance is required for sustained operations.

(4) Continuing POL resupply-in-volume is required.

4. Employment:

a. Planning and Coordination

(1) The lift capability of one CH-47 is equal to approximately four UH-1H helicopters.

(2) The extensive maintenance requirements for CH-47's are a planning factor.

(3) Maximum utilization of external loads greatly reduces elapsed time without sacrificing load carrying capabilities.

(4) Due to size and reduced maneuverability, the medium helicopter is more vulnerable to enemy fire than utility helicopters.

(5) Medium helicopters or any helicopter for that matter, should not be used in lieu of fixed wing aircraft for conducting airlifts from one fixed wing landing strip to another.

b. Tactical Employment

(1) Medium helicopters are normally employed between secured areas.

(2) Before landing at locations within a tactical area of operations, flight crews must have had a current intelligence briefing and must be able to make radio contact with US personnel located at the landing site.

(3) A gunship escort is necessary when operating in areas under enemy fire. To achieve maximum effectiveness and immediate suppression of enemy fire, the gunship crews must know the disposition of friendly troops.

(4) When operating in areas that are susceptible to enemy fire or attack, the medium helicopter should return to a secure area and wait until the supported unit is prepared to immediately load the helicopter.

5. Special Considerations:

a. Missions which could be more readily accomplished by smaller, more economical and more easily supported aircraft should be assigned to another type unit.



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b. Movement to and displacement within the battle area of artillery should be a priority mission.

c. The versatility of this unit should be exploited by combining as many missions as possible in a single operation. An example would be to deliver ammunition to an artillery battery in an LZ and to evacuate wounded on the return flight.

d. Preparation and positioning of loads in an LZ to expedite loading or sling hook-up are requirements for efficient operations. Whenever possible, all aircraft in a formation should be loaded simultaneously. The CH-47, even at full fuel capacity, has a short endurance. Since the CH-47 consumes fuel at a relatively constant rate, time lost during loading operation in a poorly organized loading area can seriously effect total unit mission capabilities.

e. POL consumption of the assault support helicopter company is a consideration which cannot be overemphasized. Planners who are unfamiliar with the operating characteristics of the CH-47 will tend toward under planning POL requirements. The average fuel consumption of the CH-47 is 300 gallons of JP-4 fuel per hour. Hydraulic fluid and engine oil consumption rates will vary. The company LNO should be consulted to assist in computing POL requirements.

f. Determination of which types of loading (external or internal) are to be used will be based on several variables. Frequently, external loading will be dictated because the load is too bulky to be loaded internally. When the size of the load permits a choice, a factor to consider is security. When it is desirable to prevent the load from being seen in flight, internal loading is the logical choice. Time is another determining factor. Properly prepared sling loads may be hooked up and unloaded much more quickly than loads which must be loaded and unloaded internally. Frequently a combination of both methods will be desirable. For long hauls (one hour), internal loading may be more desirable because of increased speed due to less drag. Maximum utilization of external loads should be used.

g. Single aircraft missions are possible but not desirable.

h. Rotor wash, resulting from hovering operations of the CH-47 exceeds 80 miles per hour. Care should be exercised in selecting LZ/PZ areas for CH-47's in order to avoid dusty or sandy areas, when possible, and to avoid operations near tents, bamboo or thatch huts, mess areas, and the like.

j. Pathfinder support is desirable during all operations involving CH-47 Helicopters.

#### 6. Safety Precautions:

The design and inherent characteristics of the CH-47 differ remarkably

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from other helicopters; therefore, all personnel must be aware of these differences that can create potentially dangerous and unsafe conditions.

a. Personnel should not approach or depart the CH-47 from the direct front or rear. Preferred route is ninety degrees to the side of the aircraft because the front rotor blade clearance is less than six feet from the ground and the engine heat cone to the rear generates temperatures to 200° F at fifty-five feet and over 900° F at 10 feet. Vehicles should expedite movement through the heat cone area.

b. The high noise level of the CH-47 can cause permanent damage to the inner ear and a cumulative hearing loss. Troops working in the vicinity of the CH-47 must be provided ear plugs or cotton.

c. Keep exposed personnel, tents, loose equipment, and debris at least sixty meters from a CH-47 landing or pick up zone. Rotor down wash from the Chinook may cause damage to any structure within sixty meters of the aircraft.

d. All vehicles and back pack radios must have whip antennas removed or tied down when used near the Chinook.

e. Hook up crews must wear goggles and ear plugs. A grounding rod should be used to discharge any static electricity from the cargo hook before hooking up a load.

#### 7. Cargo Data and Management:

##### a. Hook up of External Loads

(1) All personnel performing external load hook ups should wear goggles for eye protection.

(2) In the event of an emergency during hook up, the ground crew should exit the area to the aircraft's left. The pilots will attempt to move the aircraft to the right.

(3) All external loads must have the nylon "doughnut" as the final connecting link between the load and the cargo hook of the CH-47.

(4) The hook up man should touch the helicopter only with the nylon "doughnut". This is to preclude possible injury from the static electrical charge in the aircraft.

b. Logistical Support for CH-47 Operations: The CH-47 consumes large quantities of JP-4 during operations. Normal fuel consumption for one aircraft is 300 gallons per hour. During multi-ship lifts, fuel requirements become a significant factor. Refueling facilities are normally supplied by the supported unit.

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c. Internal versus external loading: It is an accepted fact that both external and internal loading have a place in CH-47 operations. Many loads are not suitable for external loading. However, whenever possible, external loading should be employed. The reason, of course, is increased utilization of the aircraft assigned to a mission.

d. Always prepare a load plan when working with a Chinook. A copy of a sample is attached as Inclosure 2. Experience has proven that a load plan is absolutely essential for a timely, efficient move. A load plan has always been an essential item in any Army move, airlift by the Chinook is no exception. Follow these steps:

(1) Determine what you are going to move, both personnel and equipment.

(2) Determine the priority for movement of these items.

(3) Prepare an accurate load plan.

e. Artillery Ammunition Resupply: One of the more prevalent CH-47 missions is the resupply of ammunition for artillery units. Since this is usually a time consuming and priority mission during any extended operation, a streamlining of methods is desirable. The following procedures have proven to be very effective during past experience:

(1) The A-22 container or cargo nets should be utilized whenever possible.

(2) 105mm Howitzer ammunition should be transported in the fiber container. Ammunition boxes and steel jungle pack containers greatly cut down the amount of ammunition that can be carried in one load due to the increased weight. In addition, ammunition boxes and the jungle pack containers must be removed from the forward area causing more cargo handling and aircraft time.

(3) When cargo nets are utilized, scrap canvas liners are helpful to hold objects in the nets and help distribute the load stresses.

(4) The back hauling of expended brass and other waste materials during ammo resupply is most desirable. Such materials should be prepared in nets and A-22 containers allowing quick loading and external movement.

(5) It is the supported units responsibility to provide the sling equipment and have the loads rigged upon arrival of the aircraft. A list of rigging equipment available through normal supply channels is attached as Inclosure 3.

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8. Proper Use of Slings:

a. The optimum sling leg lifting angle measured from the vertical is 30 to 35 degrees. Minimum sling tension would result from a vertical lift. Tension increases as the angle from the vertical increases reaching maximum tension when the sling legs are horizontal with the load. However, if the sling load lifting angle is less than 30 degrees, load stability is affected and rotating or swinging motion of the load may result in flight.

b. Slings should be closely inspected prior to use. Evidence of frayed or cut webbing is justification for replacement of sling.

c. Use of metal clevis with the Chinook causes undesirable in-flight vibrations. A nylon endless sling (doughnut) is necessary for sling load hook ups between the load and aircraft.

d. The minimum nylon sling in all cases is 6 feet. Shorter lengths will cause vibrations in the aircraft during flight.

e. A quick rule of thumb for determining sling lengths in order to provide a 30-35 degree angle is as follows:

(1) Measure the distance between hook up points on the load on a given side.

(2) The sling length should be the same as the longest distance between the load hook up points.

(3) For Example: The maximum distance between hook up points on the side of a load is 10 feet. Therefore, the sling leg length should be approximately 10 feet.

(4) On large symmetrically shaped loads such as conexes and commo shelters and on all loads exceeding 5000# a double endless sling (Doughnut) should be utilized to help stop load twisting and provide an adequate safety margin.

(5) Anytime a nylon sling leg rubs against a load it will cause burning of the strap due to friction and failure is probable. To preclude this, pad the areas of contact with scrap canvas or a heavy cotton material.

9. Use of Troop Ladders: The Chinook can be outfitted with a ladder device to get personnel out of areas that otherwise are inaccessible. This ladder can be used in lengths of 60 and 120 feet. The troop ladder can play an important role in tactical operations. However, the employment of these ladders is extremely hazardous for many reasons:

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a. Vulnerability of helicopter to ground fire, one sniper can turn this operation into chaos.

b. The helicopter while hovering at altitude is in the maximum danger area aerodynamically, should any mechanical malfunction occur.

c. Vulnerability of troops in small force if enemy opposition is encountered during loading or off loading.

d. Exceptional pilot skill is required to satisfactorily maintain the aircraft at a high hover and preclude entanglement of the ladder in the undergrowth.

10. It is anticipated that new and different airlift requirements will arise in day to day operations. All users of the CH-47 are requested to submit their mission requests as far in advance as possible, to allow sufficient time for direct liaison between user and CH-47 units. Users are further encouraged to request liaison visits and planning assistance whenever it is anticipated that a large volume of CH-47 support will be required.

11. Observance of the guidelines presented herein will make employment and utilization of the CH-47 (Chinook) most effective and beneficial to all using units.

*William L. Denend*  
WILLIAM L. DENEND  
LTC, Infantry  
Commanding

DISTRIBUTION:  
Special to all using units.

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## TYPICAL LOADS AND WEIGHTS

### 1. TYPE LOADS

33 Personnel (US)	7920
Cargo	<u>80</u>
Total Weight	8000
1 - $\frac{1}{2}$ ton truck	2350
1 - $\frac{1}{2}$ ton trailer	600
*17 Personnel	4030
Cargo in truck trailer	<u>1000</u>
Total Weight	8030
1 - $\frac{1}{2}$ ton truck	2350
1 - $\frac{3}{4}$ ton trailer	1350
Driver	240
Cargo (Maximum)	<u>4000</u>
Total Weight	7940
1 - $\frac{3}{4}$ ton truck w/w	5900
1 - $\frac{1}{2}$ ton trailer	600
Driver	240
Cargo (Maximum)	<u>1250</u>
Total Weight	7990
105mm Howitzer w/o shields	4600
6 Personnel @ 240#	1440
30 rds 105mm Ammo in fiber	1450
S/A Ammo, water, rations, tools	<u>500</u>
Total Weight	7990
105mm Howitzer with shields	4990
4 personnel @ 240#	960
30 rds 105mm ammo in fiber	1450
S/A Ammo, water, rations, tools	<u>600</u>
Total Weight	8000
Driver	240
1 - $\frac{3}{4}$ ton truck w/w	5900
Cargo in truck	<u>1860</u>
Total Weight	8000
2 - JP-4 Bladders (500 Gal)(Sling)	7100
2 - personnel	<u>480</u>
Total Weight	7580
2 - $\frac{1}{2}$ ton trucks w/106 RR	6290
7 personnel	<u>1680</u>
Total Weight	7970

Inclosure 1

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Inclosure 1 (Cont'd)

\*240 lbs includes the weight of the individual and his proportionate share of hand carried supplies and equipment including crew served weapons up to, but not including the 106mm rifle and 4.2 inch mortar.

2. Common Weights

1/2 ton truck w/radio	2500 lbs
1/2 ton trailer	570 lbs
3/4 ton truck	5700 lbs
3/4 ton truck w/winch	5900 lbs
3/4 ton trailer	11400 lbs
1/2 ton water trailer 400 gal	2800 lbs
1/2 ton trailer	2750 lbs
Mechanical Mule	900 lbs

ARTILLERY

105 Howitzer:	4990 lbs
w/o shields - stripped	4300 lbs
Ammo per rd in box	60 lbs
Ammo per rd in cnt	47 lbs
Ammo per rd in steel jungle pack	71 lbs
155mm Projectile	95 lbs
155 powder	35 lbs

<u>TROOPS WT</u>	<u>W/DUFFLE BAGS</u>	<u>W/O BAGS</u>
U.S.	240	200
ARVN	180	140

MISCELLANEOUS

81mm Mortar w/fuze, box of 3 rds	53.5 lbs
----------------------------------	----------

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Inclosure 1 (Cont'd)

4.2 Mortar w/fuze, box of 2 rds		81.7 lbs
Rice, 100 kilo bag		220 lbs
POL	55 GAL DRUMS	500 GAL BLADDERS
DIESEL FUEL	432 lbs	3800 lbs
JP-4	410 lbs	3500 lbs
Gasoline	373 lbs	3300 lbs
Lub Oil	472 lbs	4300 lbs



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CH-47 LOADING PLAN AND PASSENGER MANIFEST

PAD#	A/C#	DESCRIPTION OF CARGO	UNIT WT	TOTAL WT	PASSENGERS NAMES

Inclosure 2

# CARGO SLING AND NET EQUIPMENT USED FOR RIGGING EXTERNAL LOADS

## FSN

## NOMENCLATURE

1670-753-3789*	Sling Cargo Aerial Del 13,500 lbs 2 loop	8' O/A lg
3790*		9'
3791		11'
3792*		12'
3793*		16'
3794		20'
1670-753-3630	Sling Cargo Aerial Del 20,000 lbs 3 loop	8'
3631		9'
3788		13'
1670-823-5040		11'
5041		12'
5042		16'
5043		20'
3940-298-3985*	Sling Cargo Paulin: Cotton Duck 12X12 Ft Nom O/A Dia	
3940-542-4698*	Sling Cargo Net 14' Sq 7-7/8" Mesh 2 1/2 Circ Rope	
3940-675-5001	Sling Endless: Nylon Webbing 7,500 lbs Gap 10"	
	Lg 1-3/4" W	
3940-675-5002	Sling Endless: Nylon Webbing 2,500 lbs Gap 4'	
	Lg 1-3/4" W	
3940-675-5003	Sling Endless: Nylon Webbing 2,500 lbs Gap 8'	
	Lg 1-3/4" W	
3940-774-8507	Sling Cargo Net: Metal Octagonal 5,000 lbs Rated Cap	
3940-856-7998*	Sling Set Cargo Universal Type Set No 1	
3940-892-4375	Sling Cargo Net: Nylon 12X12 Ft	
3940-902-3080*	Sling Nylon 4-Leg Aeroquip 40,000 lbs Cap	
1670-242-9169*	Bag Cargo Aerial Del A-22	
1670-090-5354*	Clevis Assy Suspension Bolt and Nut Type - Size 5	
1670-360-0304*	Clevis Assy Suspension Bolt and Nut Type - Size 3	
4030-185-0490*	Shackle Anchor Screw	

\*Recommended

Inclosure 3

UNCLASSIFIED

Security Classification

## DOCUMENT CONTROL DATA - R &amp; D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

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